microplate on the robotic workstation 92. A fixture having temperature control and/or micromixing capabilities may be used for this process. After the microplate is prepared for hybridization or incubation, it is transferred using the transport system 98 to the hybridization hotel 96, where hybridization of the probes and targets (for cDNA arrays), or incubation (for protein arrays) is allowed to proceed. The hybridization hotel 96 is a high-capacity incubator that provides a programmable humidity and temperature control. Upon completion of hybridization or incubation, the plate is removed from the hotel 96 and returned to the workstation 94 for further processing such as imaging. During this process, the plate is rinsed and signal development reagents dispensed into the wells; subsequently, the plate is again rinsed and either returned to the hotel for storage or transferred to a reading station.

IN THE CLAIMS:

Please replace the text of claims 1-22 and 25 with the following text:

1. (Amended) An assembly for a microarray assay device, comprising:

a microplate having a plurality of discrete array formation areas each formed of a flexible material and activated for immobilization of biorecognition materials, and barriers formed between the array formation areas to restrict fluid cross-flow therebetween; and

a vacuum fixture defining a top surface and an interior chamber connectable to a vacuum source, wherein the microplate is mounted on the top surface of the vacuum fixture so that the array formation areas conform to the top surface of the vacuum fixture, the vacuum fixture further defining a plurality of orifices connected to the interior chamber and opening at the top surface at locations corresponding to the array formation areas when the microplate is mounted on the top surface of the vacuum fixture.

2. (Amended) The assembly of claim 1, wherein the barriers are walls formed of the flexible material, hydrophobic patches, troughs, gaskets, or pedestals formed between the array formation areas.

3. (Amended) The assembly of claim 1, wherein the barriers have a height of less than about 4 mm.

4. (Amended) The assembly of claim 1, wherein the microplate comprises a tray formed of the flexible material, the tray having a plurality of discrete wells formed therein, each well containing an array formation area at its bottom, wherein the bottom of each well is supported on the top surface of the vacuum fixture.

5. (Amended) The assembly of claim 1, wherein the microplate comprises a tray formed of the flexible material, the tray having a peripheral depression surrounding one or more array formation areas.

6. (Amended) The assembly of claim 1, wherein the microplate comprises a support plate, a flat substrate formed of the flexible material disposed over the support plate, and a gasket defining a plurality of holes, the gasket being disposed over the substrate and sealed thereto, where each area of the substrate exposed by a hole of the gasket contains an array formation area.

7. (Amended) The assembly of claim 1, wherein the microplate further comprises a rigid frame detachably attached to the flexible material, wherein the rigid frame is adapted for mounting the microplate on the top surface of the vacuum fixture.

B4

8. (Amended) The assembly of claim 7, wherein the microplate further comprises a plurality of rigid hangers, and a plurality of well strips formed of the

flexible material, each well strip being pressed-fitted into a rigid hanger, each well strip containing one or more of the discrete array formation areas.

9. (Amended) The assembly of claim 1, further comprising a plurality of microarrays of biorecognition materials, each microarray being formed within the array formation area.

10. (Amended) The assembly of claim 9, wherein the biorecognition materials include biomolecules, cells or cellular components.

11. (Amended) The assembly of claim 9, wherein the biorecognition materials are labeled.

12. (Amended) The assembly of claim 9, wherein each array contains from 1 to 1536 elements of biorecognition materials.

13. (Amended) The assembly of claim 1, wherein the array formation areas are activated for immobilization of biorecognition materials by covalent interaction, noncovalent interaction or affinity interaction.

14. (Amended) The assembly of claim 1, where the array formation areas are activated by direct surface treatment, placement of activated inserts, or adsorption of an activated coating to surface of the array formation areas.

15. (Amended) The assembly of claim 1, wherein the flexible material is a thermal formable polymer material and the microplate is formed by vacuum forming or injection molding.

B4

16. (Amended) The assembly of claim 1, wherein the flexible material has a thickness of about 0.1 to 100 mils.

17. (Amended) The assembly of claim 16, wherein the flexible material has a thickness of about 1 to 10 mils.

18. (Amended) The assembly of claim 1, wherein the flexible material has a flexural modulus of about 170-220 Ksi, a Shore D hardness of about 65-80, and a deflection temperature at 66 Psi of about 100-200°F.

19. (Amended) The assembly of claim 1, further comprising a lid formed of a plurality of caps each corresponding to the array formation area.

20. (Amended) The assembly of claim 19, wherein each cap comprises a gas inlet port, a gas outlet port, and a gas diffusion member disposed on an inside of the cap.

21. (Amended) The assembly of claim 20, wherein each cap further comprises a temperature control element.

22. (Amended) An assembly for a microarray assay device, comprising:

a microplate having a plurality of wells formed of a flexible material and having continuous flat bottoms; and

a vacuum fixture defining a top surface and an interior chamber connectable to a vacuum source, wherein the microplate is mounted on the top surface of the vacuum fixture so that the bottom of each well conforms to the top surface of the vacuum fixture, the vacuum fixture further defining a plurality of orifices connected to the interior chamber and opening at the top surface at locations corresponding to the bottoms of the wells when the microplate is mounted on the top surface of the vacuum fixture.

25. (Amended) The assembly of claim 22, further comprising a peristaltic pump connected to the interior chamber for generating an alternating positive and